

## Teacher's Hair Colors

**Instructions:** Solve the two questions below and use a Punnett square to demonstrate how you arrived at your answers.

**Question 1:** Harry has dark hair like his father, but his mom had red hair. Using the genotypes of  $rr$  (red hair),  $Rr$  (dark/brown hair),  $RR$  (dark/brown hair), what possible genotypes does each of the Potters have?

*The phenotypes of the Potters are:*

*James Potter (dad)—dark/brown hair→  $Rr$  or  $RR$*

*Lily Potter (mom)—red hair→  $rr$*

*Harry Potter—dark/brown hair→  $Rr$*

- In this situation, the only possible genotype for Harry's dark hair is  $Rr$ .*

	$r$	$r$		$r$	$r$
$R$	$Rr$	$Rr$	$R$	$Rr$	$Rr$
$r$	$rr$	$rr$	$R$	$Rr$	$Rr$

**Question 2:** Harry marries Ginny who has red hair. What are possible genotypes of their children's hair colors?

*Given Harry and Ginny's genotypes,  $Rr$  and  $rr$ , we can fill in the Punnett Square for their children's genotypes.*

- Their children have a 50% chance of being either red-or dark-haired.*

	$r$	$r$
$R$	$Rr$	$Rr$
$r$	$rr$	$rr$